ENGINEERING REPORT

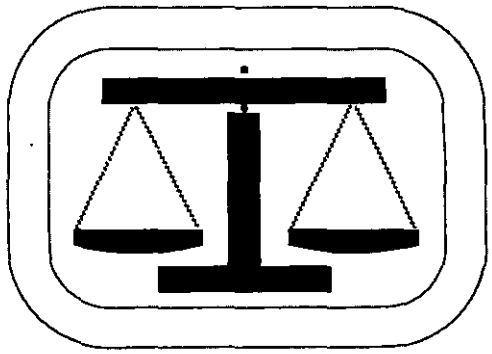
for

Contract DACW-33-81-C0030

Work Order Number 4

Inspection of Environmental Sediment Sampling

Bridgeport Harbor, Connecticut



BRIGGS

TABLE OF CONTENTS

1.1 AUTHORIZATION

The work reported herein was performed under contract DACW-33-81-C-0030, Work Order No. 4 and Modificaation No. 1 dated 19 February 1981 and 2 March 1981, respectively.

1.2 PURPOSE

The purpose of this work was to inspect the environmental sediment sampling performed by Ocean Surveys Inc., 91 Sheffield Street, Old Saybrook, CT at Bridgeport Harbor, Bridgeport CT. To accomplish this work 34 Vibracore's were obtained from the eleven test areas as shown on the attached Figure 1.

1.3 SCOPE OF INVESTIGATION

During the period from 22 February 1981 to 6 March 1981, sediment samples were taken at the locations shown on Figure 1. The project was scheduled to proceed on Monday, 23 February 1981. To meet this schedule Briggs Engineering Quality Assurance personnel mobilized on 22 February 1981, however, due to high winds and rough seas, the Ocean Survey crew did not arrive on Monday. Therefore, the project was rescheduled for Monday, 4 March 1981. Briggs mobilized its personnel on 3 March 1981 to begin work Monday, 4 March 1981. The work was completed according to the following shift schedule.

23 February 1981 One shift
Shift 1: 0530-1100hrs
4 March 1981 - Two shifts
Shift 1: 0630-1400hrs, Shift 2: 1400-2100hrs
5 March 1981 - Two shifts
Shift 1: 0630-1400hrs. Shift 2: 1400-2100hrs
6 March 1981 - Two shifts
Shift 1: 0630-1400hrs, Shift 2: 1400-2000hrs

Appendix A contains the six shift reports for this project and Appendix B contains the field exploration logs.

Location A- Three Vibracore's were attempted at this location. The recovered tubes were divided into ten samples.

Location C- Three Vibracore's were attempted at this location. The recovered tubes were divided into nine samples.

Location E- Three Vibracore's were attempted at this location. The recovered tubes were divided into ten samples.

Location F- Four Vibracore's were attempted at this location. The recovered tubes were divided into eighteen samples.

Location G- Three Vibracore's were attempted at this location. The recovered tubes were divided into nine samples.

Location H- Three Vibracore's were attempted at this location. The recovered tubes were divided into ten samples.

Location I- Three Vibracore's were attempted at this location. The recovered tubes were divided into twelve samples.

Location J- Three Vibracore's were attempted at this location. The recovered tubes were divided into eighteen samples.

Location K- Three Vibracore's were attempted at this location. The recovered tubes were divided into ten samples.

Location L- Three Vibracore's were attempted at this location. The recovered tubes were divided into twelve samples.

Location M- Three Vibracore's were attempted at this location. The recovered tubes were divided into eleven samples.

1.4 QUALITY ASSURANCE

We hereby certify that the following sampling procedure was used to perform the sampling outlined in this report:

The sampling stations for Vibracore's were located by means of visual sights, radar, fathometer and loran C. The loran C readings are recorded on the logs. Vibracore's were taken as specified in the contract document. After recovery the liners were stored on deck prior to being cut into manageable lengths. The samples were sealed with polyethylene caps and secured with tape.

The Vibracore samples were maintained in an upright position from the time they were cut to delivery to the NED laboratory in Waltham, MA. A chain of custody log documenting the custody between sampling, storage, and delivery to the NED Laboratory is included with this report. A total of 129 samples were delivered to the Corp on 9 March 1981. Sampling and storage procedures were carefully monitored by our on-site Quality assurance inspector, Mr. Jeff Shelkey, to insure strict adherence to the contract document.

The following designations were used to identify the various type ot samples obtained for testing.

Vibracore samples: VC

The sample designation sequence for cores obtained at each station is as follows:

M-VC #1 (1)

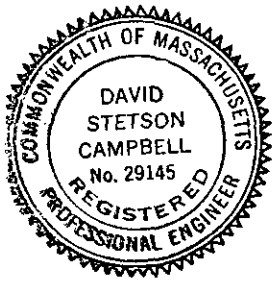
where:

M = Station Designation
VC = Vibracore
#1 = 1st hole at the station
(1)= Top section of the core

All Vibracore samples were tagged with labels in waterproof bags containing the following information:

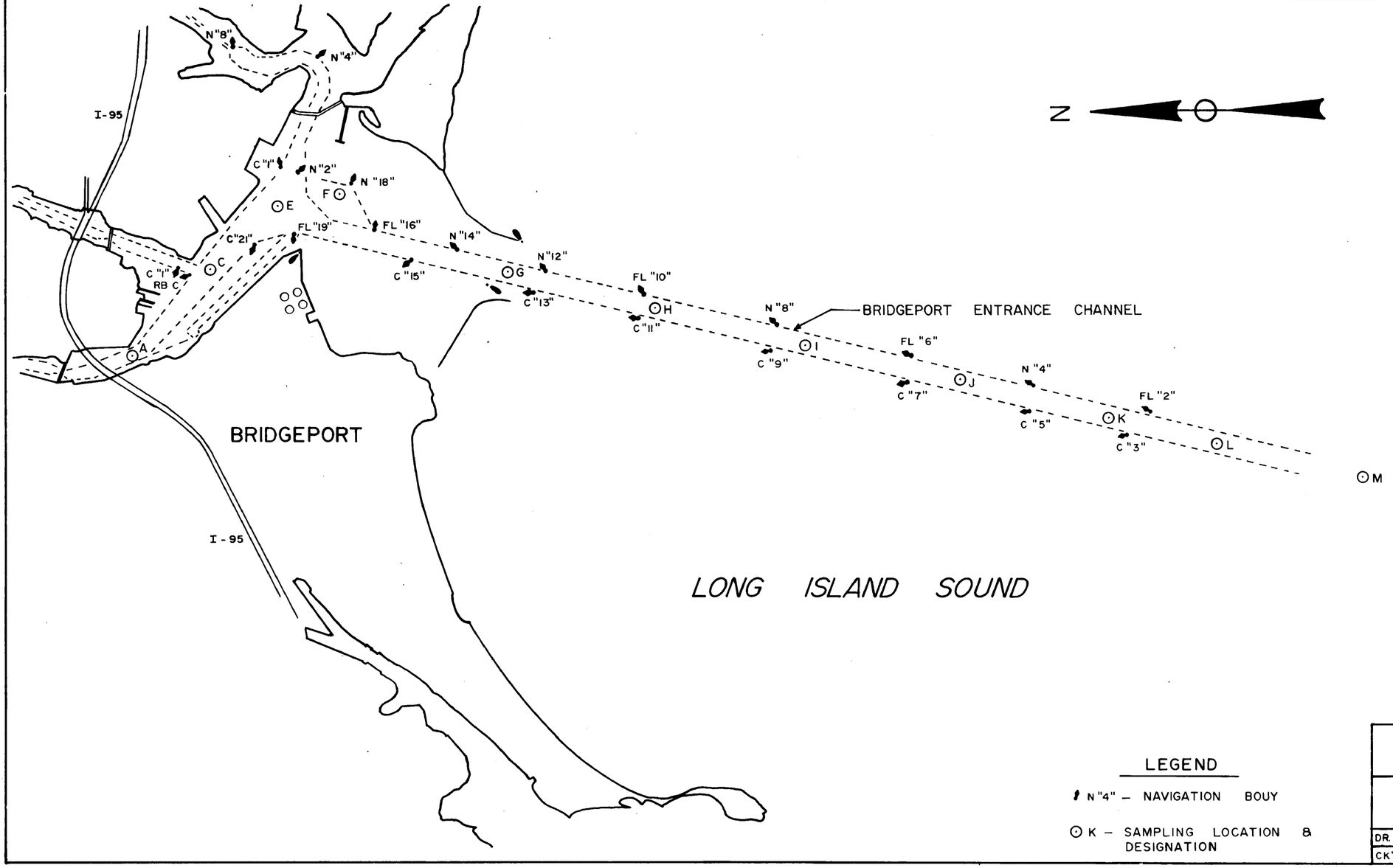
Project identification
Date and time of sampling
Location, identification, and sample designation
Vibracore liner numbers and core liner depths
Signature of inspector

The operations of Ocean Surveys Inc. were observed by Briggs Engineering Quality Assurance personnel and, in our opinion, they performed their services in a workmanlike and competent manner in accordance with the contract document.



Certified 12 March 1981

David S. Campbell, P.E.
Massachusetts No. 29145



LEGEND

N"4" – NAVIGATION BOUY

K – SAMPLING LOCATION & DESIGNATION

SAMPLE LOCATIONS

BRIGGS ENGINEERING & TESTING CO.
NORWELL, MASSACHUSETTS

DR. BY: J.C.C.	SCALE: 1, 20,000	PROJ. NO.: 12,138
CK'D BY: D.S.C.	DATE: 4/6/81	FIG. NO. 1

BRIGGS ENGINEERING CORPORATION

Chain of Custody Log

Project: *Environmental Sampling - Bridgeport CT*

Items: Tubes one-hundred and twenty nine (129)

Bottles none

Bag Samples none

Other none

Date & Time Received	Date & Time Transfered	Comments	Custodian
as sampled	3/6/1981 - 2300 hrs		J.Shelkey
3/6/1981 - 2300hrs	3/9/1981 - 1400 hrs		R.Bukowski
3/9/1981 - 1400hrs			J.Razza

APPENDIX A

Daily Reports

Briggs Engineering Co.

Shift Report

DATE: 22 February 1981
SHIFT NO: [1]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME:	COMMENTS
0525	Arrived at Union Sqaure dock as per arrangements made with Ocean Surveys Inc. The boat was to arrive at 0530 to begin work. Due to unanticipated delays, the research vessel Tioga did not arrive, therefore no sampling was started.
0830	Called office and confirmed that the vessel would not arrive until a later date.
1100	Departed Bridgeport and proceded to the Norwell office.
1445	Arrived at Norwell office and demobilized the equipment.

Briggs Engineering Co.

Shift Report

DATE: 4 March 1981
SHIFT NO: [1]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME: COMMENTS

0630 Arrived on board the research vessel Tioga at the Union Square dock and prepared sample tags and exploration logs.

0730 The crew from Ocean Survey arrived, unloaded their equipment and setup the Vibracore sampling gear.

0900 Departed the dock. Due to the predicted foul weather it was decided to start coring at the outermost station (M) and work inshore. The station locations were determined by radar, loran C and fathometer. The first eight cores were sectioned immediately after being removed from the core sampler. Sample tags were immediatly taped to the tubes.

At the insistence of Ocean Surveys, due to the backlog of samples on the deck it was decided to store the full length cores on the wheel house deck and section them after returning to the dock. Sample K-VC#9 was the first sample so stored.

1400 End of shift 1

Briggs Engineering Co.

Shift Report

DATE: 4 March 1981
SHIFT NO: [2]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME: COMMENTS

1400 Proceeded to station J. Four attempts were made to obtain sample J-VC #10 since the very fine sand was getting between the liner and the barrel, making it impossible to slide the liner out. All three barrels were used and we were unable to remove any of the liners after sampling. One barrel was flushed out and the liner hammered out. The other two were bound too tightly to remove. Work progressed slowly because the liners had to be forced from the barrel before the barrel could be used for the next coring. For sample J-VC #11 two attempts were necessary since the first sample had to be discarded because the liner could not be removed from barrel. The predicted weather for Thursday was for a full gale, therefore the captain agreed to work after dark so we could finish all of the outside stations before the onset of the foul weather.

2000 The last full-length core barrel was bent sampling station G-VC #19. The liner was removable and the sample kept, but the barrel was unusable. We tried using an eleven foot barrel and coupling a 4 foot section to it, however, the coupling came loose and when the corer was brought to the surface, the liner, the 4 foot barrel section, the cutter and the core catcher were missing. We proceeded to the dock and spent the next 2 hours trying to free up the 2 jammed barrels.

Briggs Engineering Co.

Shift Report

DATE: 5 March 1981
SHIFT NO.: [1]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME:	COMMENTS:
0630	Spent 1.5 hours on the dock trying to free up the jammed liner.
0830	The first core was taken at station F-VC #20. The corer is getting full penetration in the bottom, however, the length of sample being recovered is less than the depth of penetration.
1012	The core pipe bent due to the hard bottom conditions. The sample was removed by cutting the core pipe with a torch and pounding the liner out. Returned to the dock to try to free up last remaining core barrel.
1400	End of shift 1.

Briggs Engineering Co.

Shift Report

DATE: 5 March 1981
SHIFT NO: [2]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME:	COMMENTS
1400	Ed Swift from the Corps of Engineers, who was on board decided to use the 11 foot barrel to sample at the stations where this barrel would provide adequate penetration.
1503	Began sampling at Station A.
1713	Bent the 11 foot core barrel on station E-VC #29.
1730	Returned to the dock.
2000	Completed sectioning and tagging of core liners.

Briggs Engineering Co.

Shift Report

DATE: 6 March 1981
SHIFT NO: [1]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME:	COMMENTS:
0630	Ocean Surveys seccured 3 additional core barrels and 6 additional liners.
0715	Left dock and proceeded to sampling station.
0730	Ruptured a hydraulic hose fitting and had it replaced before we could begin coring.
0837	First core at station C-VC #30 taken.
1001	Bent the new core pipe on station G-VC #33. The liner was removed and the sample saved.
1025	Bent the second barrel. Hauled the gear on board and proceeded to dock. Spent the next hour removing the jammed core liners from the barrels. Proceeded to load the gear and liners into the truck.
1400	End of Shift 1.

Briggs Engineering Co.

Shift Report

DATE: 6 March 1981
SHIFT NO.: [2]
PROJECT: Bridgeport Harbor
INSPECTOR: Jeff Shelkey

TIME:	COMMENTS:
1400	Departed Union Square Dock with full length liners in truck. Proceeded to Ocean Surveys Inc., Old Saybrook to section the liners.
2000	Proceeded to Norwell after sectioning all cores.
2230	Arrived at Norwell and unloaded core sections.

APPENDIX B

Field Exploration Logs

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 25, 3 tubes DESIGNATION: A-VC #25

COORDINATES: NORTH 15157.9 EAST 26707.2

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C __

SOUNDING: 38'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 37.3 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 8' 11" (103 1/2") (1/3 top to 32.0" (2/3) 32.0 to 64.0", (3/3) 64.0 to 103.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 11' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __ GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH ____
24 hr TIME: 1503 REDOX ____
SEA STATE: 3 BLACK =
WEATHER CODE 23 WHITE =

OPERATIONAL DIFFICULTIES Using eleven foot core barrel

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 26, 3 tubes DESIGNATION: A-VC #26

COORDINATES: NORTH 15157.9 EAST 26707.2

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 38'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 37.6 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 8' 9" (105 1/2") (1/3)top to 32.0" (2/3) 32.0 to 64.0", (3/3) 64.0 to 105.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 11' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH
24 hr TIME: 1535 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =

OPERATIONAL DIFFICULTIES

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 27, 4 tubes DESIGNATION: A-VC #27

COORDINATES: NORTH 15148.0 EAST 26707.1

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 38'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 37.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 108 1/2", (1/4) top to 32.0", (2/4) 32.0 to 64.0
(3/4) 64.0 to 96.0" (4/4) 96.0 to 108.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD _____

BARREL LENGTH: _____ WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH _____
24 hr TIME: 1559 REDOX _____
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 6 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 30, 3 tubes DESIGNATION: C-VC #30

COORDINATES: NORTH 15146.1 EAST 26703.1

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 33.1 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 86", (1/3) top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 86.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD _____

BARREL LENGTH: 15' WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 065 SECCHI DISC READINGS: pH _____
24 hr TIME: 0837 REDOX _____
SEA STATE: 2 BLACK =
WEATHER CODE 01 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 6 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 31, 3 tubes DESIGNATION: C-VC #31

COORDINATES: NORTH 15146.1 EAST 26703.3

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 32.4 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 93", (1/3) top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 93.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS TEMPERATURE
QUARTS DOD
PINTS SALINITY

JULIAN DATE: 065 SECCHI DISC READINGS: pH
24 hr TIME: 0904 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 01 WHITE =

OPERATIONAL DIFFICULTIES

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 6 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 32, 3 tubes DESIGNATION: C-VC #32

COORDINATES: NORTH 15156.2 EAST 26703.3

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 48'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 41.2 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 96", (1/3) top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 96.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 065 SECCHI DISC READINGS: pH ____
24 hr TIME: 0920 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 01 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 24, 3 tubes DESIGNATION: E-VC #24

COORDINATES: NORTH 15155.0 EAST 26700.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 36'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 28.6 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 97 1/2", top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 97.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __ GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH ____
24 hr TIME: 1012 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =

OPERATIONAL DIFFICULTIES Core pipe bent-hard bottom

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 28, 4 tubes DESIGNATION: E-VC #28

COORDINATES: NORTH 15154.8 EAST 26700.3

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING:
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 36.9 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 138", (1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0" (4/4) 96.0 to 138.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 11' WEIGHT LBS: __ FREE FALL: __

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 064 SECCHI DISC READINGS: pH __
24 hr TIME: 1640 REDOX __
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =
snow

OPERATIONAL DIFFICULTIES __

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 29, 3 tubes DESIGNATION: E-VC #29

COORDINATES: NORTH 15154.8 EAST 26700.4

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 37'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 36.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 97 1/2", (1/3) top to 32.0", (2/3) 32.0 to 64.0"
(3/3) 64.0 to 97.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 11' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH
24 hr TIME: 1713 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =

OPERATIONAL DIFFICULTIES Core pipe bent

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 20, 4 tubes DESIGNATION: F-VC #20

COORDINATES: NORTH 15155.0 EAST 26699.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C __

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 32.2 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 12' (144 1/2") (1/4) top to 32.0, (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0", (4/4) 96.0 to 144.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH ____
24 hr TIME: 0835 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =
snow

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 21, 4 tubes DESIGNATION: F-VC #21

COORDINATES: NORTH 15155.0 EAST 26699.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C __

SOUNDING: 38'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 31.1 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 115.5", (1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 83.5" (4/4) 83.5 to 115.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064
24 hr TIME: 0845
SEA STATE: 2
WEATHER CODE 23

SECCHI DISC READINGS:
BLACK =
WHITE =

pH ____
REDOX ____

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 22, 6 tubes DESIGNATION: F-VC #22

COORDINATES: NORTH 15154.8 EAST 26699.9

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 31.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 181", (1/6) top to 32.0" (2/6) 32.0 to 64.0", (3/6) 64.0 to 96.0" (4/6) 96.0 to 128.0", (5/6) 128.0 to 160.0, (6/6) 160.0 to 181.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: __ FREE FALL: __

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 064 SECCHI DISC READINGS: pH __
24 hr TIME: 0907 REDOX __
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =
snow

OPERATIONAL DIFFICULTIES __

NO. OF SAMPLES SHIPPED: 6

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 5 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 23, 4 tubes DESIGNATION: F-VC #23

COORDINATES: NORTH 15144.8 EAST 26699.9

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 31.7 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 145", (1/4) top to 32.0" (2/4) 32.0 to 64.0", , (3/4) 64.0 to 96.0" (4/4) 96.0 to 145.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER __ DISCARD _____

BARREL LENGTH: _____ WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 064 SECCHI DISC READINGS: pH _____
24 hr TIME: 0925 REDOX _____
SEA STATE: 2 BLACK =
WEATHER CODE 23 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 19, 5 tubes DESIGNATION: G-VC #19

COORDINATES: NORTH 15158.4 EAST 26700.9

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 44'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 37.1 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 170", 14', (1/5) top to 32.0", (2/5) 32.0 to 64.0", (3/5) 64.0 to 96.0", (4/5) 96.0 to 128.0" (5/5) 128.0 to 170" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 063 SECCHI DISC READINGS: pH
24 hr TIME: 1959 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES Core pipe bent-core removeable

NO. OF SAMPLES SHIPPED: 5

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 6 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 33, 2 tubes DESIGNATION: G-VC #33

COORDINATES: NORTH 15158.1 EAST 26700.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT X
VISUAL X
LORAN C X

SOUNDING: 48'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 40.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 66", (1/2) top to 32.0", (2/2) 32.0 to 66.0", bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: __ FREE FALL: __

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 065 SECCHI DISC READINGS: pH __
24 hr TIME: 1001 REDOX __
SEA STATE: 2 BLACK =
WEATHER CODE 01 WHITE =

OPERATIONAL DIFFICULTIES Hard bottom-pipe bent

NO. OF SAMPLES SHIPPED: 2

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 6 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 34, 2 tubes DESIGNATION: G-VC #34

COORDINATES: NORTH 15158.1 EAST 26700.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 48'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 40.6 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 56", (1/2) top to 32.0", (2/2) 32.0 to 56.0", bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 065 SECCHI DISC READINGS: pH ____
24 hr TIME: 1025 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 01 WHITE =

OPERATIONAL DIFFICULTIES Very hard bottom-pipe bent

NO. OF SAMPLES SHIPPED: 2

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 16, 3 tubes DESIGNATION: H-VC #16

COORDINATES: NORTH 15160.1 EAST 26701.1

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 41'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 36.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 103 1/2", (1/3) top to 32.0", (2/3) 32.0 to 64.0
(3/3) 64.0 to 103.5 bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 063 SECCHI DISC READINGS: pH
24 hr TIME: 1900 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 17, 3 tubes DESIGNATION: H-VC #17

COORDINATES: NORTH Same as #16 EAST _____

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 41'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 34.6 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 105", (1/3) top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 105.0 bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD _____

BARREL LENGTH: 15' WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH _____
24 hr TIME: 1910 REDOX _____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 18, 4 tubes DESIGNATION: H-VC #18

COORDINATES: NORTH Same as #16 EAST

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 42'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 35.2 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 112", (1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0" (4/4) 96.0 to 112.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 063 SECCHI DISC READINGS: pH
24 hr TIME: 1933 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 13, 4 tubes DESIGNATION: I-VC #13

COORDINATES: NORTH 15162.3 EAST 26701.3

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 37'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 33.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 127", (1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0", (4/4) 96.0 to 127.0 bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 1747 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 14, 5 tubes DESIGNATION: I-VC #14

COORDINATES: NORTH 15162.3 EAST 26701.3

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 38'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 33.9 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 159", (1/5) top to 32.0", (2/5) 32.0 to 64.0", (3/5) 64.0 to 96.0", (4/5) 96.0 to 128.0" (5/5) 128.0 to 159.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: _____ WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH _____
24 hr TIME: 1810 REDOX _____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 5

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 15, 3 tubes DESIGNATION: I-VC #15

COORDINATES: NORTH 15162.2 EAST 26701.3

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 37'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 32.2 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 115", (1/3) top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 115.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063
24 hr TIME: 1830
SEA STATE: 2
WEATHER CODE 03

SECCHI DISC READINGS:
BLACK =
WHITE =

pH ____
REDOX ____

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 10, 6 tubes DESIGNATION: J-VC #10

COORDINATES: NORTH 15164.0 EAST 26701.0

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 35'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 33.5 MLW

NUMBER OF ATTEMPTS: 4

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 181",(1/6) top to 32.0", (2/6) 32.0 to 64.0", (3/6) 64.0 to 96.0",(4/6) 96.0 to 128.0" (5/6) 128.0 to 160.0", (6/6) 160.0 to 181.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 063 SECCHI DISC READINGS: pH
24 hr TIME: 1657 REDOX
SEA STATE: 3 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES Core liner binding in casing

NO. OF SAMPLES SHIPPED: 6

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 11, 6 tubes DESIGNATION: J-VC #11

COORDINATES: NORTH 15164.0 EAST 26701.0

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 35'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 33.5 MLW

NUMBER OF ATTEMPTS: 2

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 180",(1/6) top to 32.0", (2/6) 32.0 to 64.0", (3/6) 64.0 to 96.0",(4/6) 96.0 to 128.0" (5/6) 128.0 to 160.0", (6/6) 160.0 to 180.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 063 SECCHI DISC READINGS: pH
24 hr TIME: 1705 REDOX
SEA STATE: 3 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES

NO. OF SAMPLES SHIPPED: 6

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 12, 6 tubes DESIGNATION: J-VC #12

COORDINATES: NORTH 15154.0 EAST 26700.9

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 37'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 34.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 180 1/2",(1/6) top to 32.0", (2/6) 32.0 to 64.0" (3/6) 32.0 to 64.0",(4/6) 96.0 to 128.0" (5/6) 128.0 to 160.0", (6/6) 160.0 to 180.5" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 1725 REDOX ____
SEA STATE: ____ BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 6

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 7 3 tubes DESIGNATION: K-VC #7

COORDINATES: NORTH 15165.8 EAST 26700.6

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 35.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 97",(1/3)top to 32.0",(2/3) 32.0 to 64.0", (3/3) 64.0 to 97.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 1230 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 8, 4 tubes DESIGNATION: K-VC #8

COORDINATES: NORTH 15165.3 EAST 26700.5

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 38'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 35.5 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 114",(1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0", (4/4) 96.0 to 114.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 1245 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 9, 3 tubes DESIGNATION: K-VC #9

COORDINATES: NORTH 15165.3 EAST 26700.5

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 39'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 37.5 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom Muds

MATERIAL DEPTH: 104",(1/3) top to 32.0", (2/3) 32.0 to 64.0", (3/3) 64.0 to 104.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD _____

BARREL LENGTH: 15' WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __ GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH _____
24 hr TIME: 1315 REDOX _____
SEA STATE: 3 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES Refusal at 15'

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 4, 4 tubes DESIGNATION: L-VC #4

COORDINATES: NORTH 15157.0 EAST 26700.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL __
LORAN C __

SOUNDING: 45'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 38.6 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom muds

MATERIAL DEPTH: 129",(1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 69.0 to 96.0",(4/4) 96.0 to 129.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD _____

BARREL LENGTH: 15' WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH _____
24 hr TIME: 1101 REDOX _____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 5, 4 tubes DESIGNATION: L-VC #5

COORDINATES: NORTH 15157.0 EAST 26700.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL __
LORAN C X

SOUNDING: 45'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 38.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom muds

MATERIAL DEPTH: 110",(1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0",(4/4) 96.0 to 110.0 bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD

BARREL LENGTH: 15' WEIGHT LBS: FREE FALL:

WATER SAMPLES:
NUMBER: __
GALLONS __ TEMPERATURE __
QUARTS __ DOD __
PINTS __ SALINITY __

JULIAN DATE: 063 SECCHI DISC READINGS: pH
24 hr TIME: 1115 REDOX
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 6, 4 tubes DESIGNATION: L-VC #6

COORDINATES: NORTH 15157.0 EAST 26700.8

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL __
LORAN C __

SOUNDING: 45'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 39.3 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom muds

MATERIAL DEPTH: 121",(1/4) top to 32.0", (2/4) 32.0 to 64.0", (3/4) 64.0 to 96.0",(4/4) 96.0 to 121.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE. 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 1130 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 1, 4 tubes DESIGNATION: M-VC #1

COORDINATES: NORTH 26700.8 EAST 15158.6

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X
RADAR X

SOUNDING: 48'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 40.8 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom muds

MATERIAL DEPTH: 121',(1/4) top to 32.0",(2/4) 32.0 to 64.0",
(3/4) 64.0 to 96.0",(4/4) 96.0 to 121.0 bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD __

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 0945 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 2, 3 tubes DESIGNATION: M-VC #2

COORDINATES: NORTH 26700.8 EAST 15158.6

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 47'·
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 39.9 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom muds

MATERIAL DEPTH: 91"(1/3) top to 32.0", (2/3) 32.0 to 64.0",
(3/3) 64.0 to 91.0" bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER __ DISCARD __

BARREL LENGTH: _____ WEIGHT LBS: _____ FREE FALL: _____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

JULIAN DATE: 063 SECCHI DISC READINGS: pH _____
24 hr TIME: 1010 REDOX _____
SEA STATE: _____ BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES _____

NO. OF SAMPLES SHIPPED: 3

INSPECTOR: Jeff B. Shelkey

BRIGGS ENGINEERING CORPORATION

ENVIRONMENTAL EXPLORATION LOG

PROJECT: Bridgeport Harbor DATE: 4 March 1981

SAMPLER TYPE:
KULLENBERG __ PISTON __ DREDGE __ CORE X WATER __ OTHER __

SAMPLE NO. 3, 4 tubes DESIGNATION: M-VC #3

COORDINATES: NORTH 26700.8 EAST 15158.6

LOCATION METHOD:
TRANSIT __
RANGES __
SEXTANT __
VISUAL X
LORAN C X

SOUNDING: 47'
LEAD LINE __
FATHOMETER X
TIDEBOARD __
TIDE TABLE __
TIDE CURVE __
REDUCED SOUNDING: 40.0 MLW

NUMBER OF ATTEMPTS: 1

MATERIAL DESCRIPTION: Bottom muds

MATERIAL DEPTH: 138",(1/4) top to 32.0", (2/4) 32.0 to 64.0",
(3/4) 64.0 to 96.0",(4/4) 96.0 to 138.0 bottom

SAMPLE DISPOSITION: BAG __ JAR __ LINER X DISCARD ____

BARREL LENGTH: 15' WEIGHT LBS: ____ FREE FALL: ____

WATER SAMPLES:
NUMBER: __
GALLONS ____ TEMPERATURE ____
QUARTS ____ DOD ____
PINTS ____ SALINITY ____

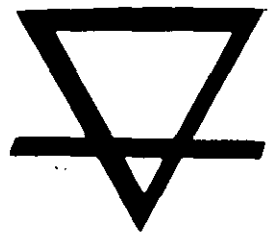
JULIAN DATE: 063 SECCHI DISC READINGS: pH ____
24 hr TIME: 1023 REDOX ____
SEA STATE: 2 BLACK =
WEATHER CODE 03 WHITE =

OPERATIONAL DIFFICULTIES ____

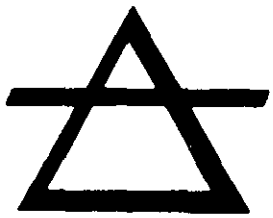
NO. OF SAMPLES SHIPPED: 4

INSPECTOR: Jeff B. Shelkey

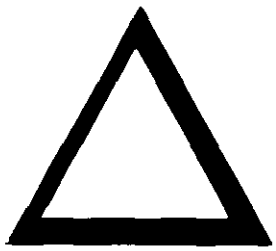
In ancient times
Greek and Hindu philosophers
believed that there were
four elements in the material universe
— EARTH, AIR, FIRE and WATER.
Over the years
man's knowledge has expanded
and the world of materials
is now known to be extremely complex.
The unravelling of these complexities
is the continuing goal of
Briggs Engineering & Testing Company.



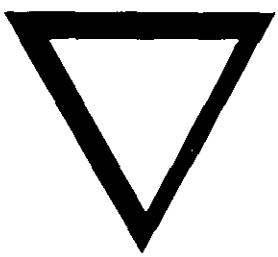
EARTH



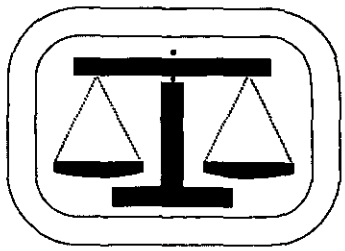
AIR



FIRE



WATER



BRIGGS

Engineering and Testing

164 Washington Street, Norwell, Massachusetts 02061 Telephone (617) 773-2780